

Chest & Abdomen X-ray Review

Abdomen

Aneurysm of the Abdominal Aorta

- Most are asymptomatic. Back or abdominal pain
- 90% originate below the renal arteries. May involve the bifurcation of the aorta.
- Infrarenal aorta is normally 2cm in diameter. Aneurysm when diameter exceeds 4 cm.
- Pulsating mid and upper abdominal mass. Peripheral pulses often prominent. Aneurysms of the popliteal artery often coexist. Pain midabdominal or lower back. May be constant or intermittent. Peripheral emboli. Rupture.

Aneurysm of the Abdominal Aorta

- In asymptomatic patients, surgery is advised when aneurysm is 5-6cm in diameter. Symptomatic patients, repair is indicated irrespective of size.
- The likelihood of rupture increases with increasing size. 60-80% of patients with lesions 7cm or larger die of rupture, and 95% of patients with lesions over 10cm die of rupture. The risk of rupture in aneurysms 5cm or less is considerably lower.
- Diagnostic ultrasound is useful to confirm the diagnosis.

Gallstones

- About 75% are composed of cholesterol (cholesterol gallstone), and 25% of calcium bilirubinate and other calcium salts (pigment gallstones).
- 15-20% of gallstones are radiopaque (positive)
- About 75% of American Indian women over the age of 25 years and 90% of those over age 60 are affected. In the US, 20% of 75 year old men and 35% of 75 year old women have stones at autopsy.

Gallstones

- Approximately 60-80% of patients with gallstones are asymptomatic
- Diagnostic ultrasound is very reliable in detecting stones and should be used as the first test for screening for gallstones.
- Prophylactic cholecystectomy is reserved for the following:
 - diabetics (10-15% mortality from acute cholecystitis)
 - patients with calcified gallbladders (associated with carcinoma of the gallbladder).

Calcification of Gallbladder (Porcelain Gallbladder)

- An eggshell-like rim of calcium in the gallbladder wall. Seen with chronic cholecystitis and obstruction of the cystic duct.
- Frequently associated with carcinoma of the gallbladder
 - Carcinoma of the gallbladder represents 1% of all cancer deaths and 3% of GI malignant disease.
- Women 3:1. Average age is 70 years. 70-80% have gallstones.

Renal Calculi

Nephrolithiasis

- Kidney stone affects 1-5% of the population, with a recurrence rate of 50-80%
- Calcareous (calcium-containing) stones account for 80-95% of stones and are composed of calcium oxalate and calcium phosphate
- About 90% of kidney stones are radiopaque
- Patients should be evaluated for potential underlying causes for stone formation – gout, absorptive hypercalciuria, cystinuria, distal, gradient-limited renal tubular acidosis, or primary hyperparathyroidism.

Nephrocalcinosis

- Calcification of renal parenchyma
- With nephrocalcinosis, consider distal, gradient-limited renal tubular acidosis or primary hyperparathyroidism.

Fibroid Tumor of the Uterus (Leiomyoma, Myoma of the Uterus, Fibromyoma)

- Benign neoplasm of uterine smooth muscle
- Found in 1 of every 4 women. Most common benign neoplasm of the female genital tract.
- May be solitary or multiple. 20-40 years of age. Tend to stop growing actively or regress after menopause.
- Most patients are asymptomatic.

Fibroid Tumor of the Uterus

- Common cause of excessive uterine bleeding (menorrhagia). Cause of infertility. Pelvic pain/pressure symptoms. Urinary frequency. Dysmenorrhea. Heavy bleeding (anemia). Pain. Pressure symptoms. Infertility. Pregnancy complications.
- Rarely undergo malignant change - 0.5% leiomyosarcoma.
- Ultrasonography

Chest

Carcinoma of the Lung

- Leading cause of death by cancer in men and women.
- Cough. Hemoptysis. Dyspnea. Chest pain. Weight loss.
- Enlarging mass. Infiltrate. Atelectasis. Pleural effusion. Superior vena cava syndrome. Obstruction causes edema and congestion of face and brain. Phrenic nerve palsy. Recurrent laryngeal nerve palsy. Hoarseness.

Pancoast's Tumor (Superior Sulcus Tumor)

- Apical lung carcinoma (superior sulcus tumor)
- Involves T1 nerve and cervical sympathetic trunk
- Pancoast's Syndrome: Horner's syndrome. Ptosis of eyelid. Pupillary constriction (miosis). Loss of sweating on the affected side. Enophthalmos.

Tumors Metastatic to the Lung

- The lung may be involved from hematogenous and lymphatic spread of carcinomas and sarcomas. Metastatic lesions may cause dyspnea, cough and chest pain.
- Generally, multiple pulmonary nodules; however, a solitary nodule may be the only sign of metastatic disease. Some metastatic lesions may cavitate.

Solitary Pulmonary Nodule

- The etiology of solitary pulmonary nodules include neoplasia, infection and collagen vascular disease.
- Both benign and malignant tumors may manifest as a solitary pulmonary nodule.
- Approximately 40% of the solitary pulmonary nodules are malignant, and of these, 85-90% are bronchiogenic carcinoma.
- Calcification within the nodule is usually a sign of a benign lesion.
- Previous radiographs should be obtained for comparison. A lesion that has not enlarged in two or more years is probably benign.